

HIGH DENSITY PLASMA PROCESS FOR OPTIMUM FILM QUALITY AND ELECTRICAL RESULTS

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ABSTRACT OF THE DISCLOSURE

5 A method for plasma processing of semiconductor wafers is provided that reduces plasma-induced damage to the gate dielectric while limiting damage to the wafer from particulates that flake off of the interior surfaces of the reaction chamber. Plasma conditions are maintained in the reaction chamber while the wafer is transferred into the chamber and the plasma process is performed. After the plasma process, while still

10 10 maintaining plasma conditions, the wafer is cooled to a removal temperature and removed from the reaction chamber.